

# WEST Search History

DATE: Saturday, June 29, 2002

<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
	side by side		result set
<i>DB=JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
L21	l19 and l20	14	L21
L20	metal oxide or tin oxide or stannous oxide or stannic oxide or sno dimethylethyl methyl ether or (methoxy adj2 methylpropane) or (methyl adj2 methoxylpropane) or t-butyl methyl ether or	87797	L20
L19	butoxymethane or butyl methyl ether or mtbe or methy tert butyl ether or methyl ter butyl ether or methyl t-butyl ether	905	L19
<i>DB=USPT; PLUR=YES; OP=ADJ</i>			
L18	l16 and l11	1	L18
L17	(L16 or l13).ti,ab,clm.	4	L17
L16	(detect\$3 or measur\$3 or determin\$6 or indicat\$3) with l15 dimethylethyl methyl ether or (methoxy adj2 methylpropane) or	29	L16
L15	(methyl adj2 methoxylpropane) or t-butyl methyl ether or butoxymethane or butyl methyl ether	2898	L15
L14	L13 and l11	5	L14
L13	(detect\$3 or measur\$3 or determin\$6 or indicat\$3) with l10	123	L13
L12	l10 and l11	395	L12
L11	metal oxide or tin oxide or stannous oxide or stannic oxide or sno	108711	L11
L10	mtbe or methy tert butyl ether or methyl ter butyl ether or methyl t-butyl ether	3045	L10
L9	6165945 or 6080704	2	L9
<i>DB=DWPI; PLUR=YES; OP=ADJ</i>			
L8	ca-2245013-\$ did.	1	L8
<del><i>DB=USPT; PLUR=YES; OP=ADJ</i></del>			
L7	ca-2245013-\$ did,	0	L7
L6	l5 same (channel or passageway)	4	L6
L5	(microtiter or microtitre) with (cover or lid or cap)	169	L5
L4	L3 and l2	40	L4
L3	(lyophilic or lyophilic or hydrophilic) and (lyophobic or hydrophobic or lyophilic)	38359	L3
L2	(microtiter or microtitre) same (channel or passageway)	246	L2
L1	(microtiter or microtitre) and (channel or passageway)	2522	L1

END OF SEARCH HISTORY

09/581,264

LUCIO De Angelis

=> s methyl tert butyl ether/cn  
L1 1 METHYL TERT BUTYL ETHER/CN

=> d 11

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS  
RN 1634-04-4 REGISTRY  
CN Propane, 2-methoxy-2-methyl- (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Ether, tert-butyl methyl (6CI, 7CI, 8CI)  
OTHER NAMES:  
CN 1,1-Dimethylethyl methyl ether  
CN 2-Methoxy-2-methylpropane  
CN 2-Methyl-2-methoxypropane  
CN Methyl 1,1-dimethylethyl ether  
CN **Methyl tert butyl ether**  
CN Methyl tert-butyl ether  
CN Methyl tertiary butyl ether  
CN MTBE  
CN t-Butyl methyl ether  
CN tert-Butoxymethane  
CN tert-Butyl methyl ether  
FS 3D CONCORD  
MF C5 H12 O  
CI COM  
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,  
CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM\*,  
DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,  
HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS,  
NIOSHTIC, PDLCOM\*, PHAR, PIRA, PROMT, RTECS\*, SPECINFO, SYNTHLINE,  
TOXCENTER, ULIDAT, USPAT2, USPATFULL, VTB  
(\*File contains numerically searchable property data)  
Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)

t-Bu—O—Me

08/027 558

08/314370 5447054

07/662 781

08/168232  
5400643

=> s 1634-04-4/rn  
    4890 1634-04-4  
    14 1634-04-4D  
L2     4882 1634-04-4/RN  
      (1634-04-4 (NOTL) 1634-04-4D )

=> s metal oxide or tin oxide or stannous oxide or stannic oxide or sno  
    1345436 METAL  
    669261 METALS  
    1631119 METAL  
      (METAL OR METALS)  
    1263557 OXIDE  
    285209 OXIDES  
    1357367 OXIDE  
      (OXIDE OR OXIDES)  
    75285 METAL OXIDE  
      (METAL(W)OXIDE)  
    197064 TIN  
    542 TINS  
    197397 TIN  
      (TIN OR TINS)  
    1263557 OXIDE  
    285209 OXIDES  
    1357367 OXIDE  
      (OXIDE OR OXIDES)  
    28966 TIN OXIDE  
      (TIN(W)OXIDE)  
    7442 STANNOUS  
    1263557 OXIDE  
    285209 OXIDES  
    1357367 OXIDE  
      (OXIDE OR OXIDES)  
    308 STANNOUS OXIDE  
      (STANNOUS(W)OXIDE)  
    4316 STANNIC  
    1263557 OXIDE  
    285209 OXIDES  
    1357367 OXIDE  
      (OXIDE OR OXIDES)  
    1403 STANNIC OXIDE  
      (STANNIC(W)OXIDE)  
    3601 SNO  
    40 SNOS  
    3629 SNO  
      (SNO OR SNOS)

L3     103980 METAL OXIDE OR TIN OXIDE OR STANNOUS OXIDE OR STANNIC OXIDE OR  
         SNO

=> s 12 and 13  
L4     36 L2 AND L3

=> s platinum or pt  
    149998 PLATINUM  
    47 PLATINUMS  
    150007 PLATINUM  
      (PLATINUM OR PLATINUMS)  
    204597 PT  
    3771 PTS  
    207629 PT  
      (PT OR PTS)

L5     260788 PLATINUM OR PT

=> s 14 and 15  
L6     3 L4 AND L5

=> d 16 1-3 ibib, kwic

L6     ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:774180 CAPLUS  
 DOCUMENT NUMBER: 136:106991  
 TITLE: Low temperature catalytic decomposition and oxidation  
 of MTBE  
 AUTHOR(S): Mitani, M. M.; Keller, A. A.; Golden, S. J.; Hatfield,  
 R.; Cheetham, A. K.  
 CORPORATE SOURCE: Bren School of Environmental Science and Management,  
 University of California, Santa Barbara, CA, 93106,  
 USA  
 SOURCE: Applied Catalysis, B: Environmental (2001), 34(2),  
 87-95  
 CODEN: ACBEE3; ISSN: 0926-3373  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Catalytic combustion of methyl-tert-butyl-ether (MTBE) was studied in the  
 gas-phase from an aq. soln. spiked with MTBE (1.1 mM), to simulate actual  
 remediation conditions. The soln. of MTBE was sparged with an  
 oxygen/helium gas, at a ratio of 1-4. The sparged gas stream of MTBE and  
 water vapor was passed over catalysts utilizing Pt/Rh or Pd in  
 conjunction with a mixed metal oxide based upon  
 $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ . The results were compared to a com. catalyst which  
 contained a higher loading of Pt. The expts. with the catalysts  
 were conducted over a temp. range of 80-500.degree.C. Combustion to CO<sub>2</sub>  
 and water was obsd. in all cases, but byproduct formation of isobutene and  
 methanol was seen at lower temps. for all of the catalysts tested, with  
 the exception of the com. catalyst. The catalyst with the lowest loading  
 of Pt/Rh achieved the lowest temp. for complete oxidn. of MTBE  
 and its byproducts.

IT 7440-05-3, Palladium, uses 7440-06-4, **Platinum**, uses  
 7440-16-6, Rhodium, uses 126447-16-3, Lanthanum strontium manganese  
 oxide (La,Sr)MnO<sub>3</sub>  
 RL: CAT (Catalyst use); USES (Uses)  
 (low temp. catalytic decompn. and oxidn. of MTBE)  
 IT **1634-04-4**, MTBE  
 RL: REM (Removal or disposal); PROC (Process)  
 (low temp. catalytic decompn. and oxidn. of MTBE)

L6 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1999:784338 CAPLUS  
 DOCUMENT NUMBER: 132:5852  
 TITLE: Process for the determination of MTBE in the ground  
 and air  
 INVENTOR(S): De Angelis, Lucio  
 PATENT ASSIGNEE(S): Enitecnologie S.P.A., Italy  
 SOURCE: PCT Int. Appl., 19 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9963340	A1	19991209	WO 1999-EP1821	19990218
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2315001	AA	19991209	CA 1999-2315001	19990218
AU 9935972	A1	19991220	AU 1999-35972	19990218
EP 1084403	A1	20010321	EP 1999-917826	19990218

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, FI

JP 2002517723 T2 20020618 JP 2000-552496 19990218  
PRIORITY APPLN. INFO.: IT 1998-MI1248 A 19980604  
WO 1999-EP1821 W 19990218

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Pollution by methyl-tert-butyl-ether (MTBE) in soil and at the surface is monitored using solid state sensors. The sensors consist of a sensitive element made of a semi-conductor **metal oxide** contg.

**platinum**, for example **tin oxide**, and a heater capable of bringing the temp. of the element to a range of 300-500.degree.C. The sensors are equipped with a membrane permeable to gas and impermeable to water and change resistance in response to interaction with MTBE. An example is described relating to the monitoring of underground fuel tanks contg. fuel with this oxygenated additive.

ST sensor environmental monitoring methyltertbutylether fuel leak;  
**platinum tin oxide** sensor methyltertbutylether

IT 1634-04-4, Methyl tert butyl ether  
RL: ANT (Analyte); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)

(solid state sensors for monitoring gasoline additive MTBE to detect fuel spills in soil and aboveground)

IT 1344-28-1, Alumina, uses 7440-06-4, **Platinum**, uses

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)  
(solid state sensors for monitoring gasoline additive MTBE to detect fuel spills in soil and aboveground)

IT 1332-29-2, **Tin oxide**  
RL: DEV (Device component use); USES (Uses)  
(solid state sensors for monitoring gasoline additive MTBE to detect fuel spills in soil and aboveground)

L6 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1995:846620 CAPLUS

DOCUMENT NUMBER: 123:233131

TITLE: Isopropyl alcohol and ether production from acetone.

INVENTOR(S): Knifton, John Frederick; Dai, Pei-Shing Eugene;  
Taylor, Robert Joel, Jr.; Martin, Bobby Ray

PATENT ASSIGNEE(S): Texaco Development Corp., USA

SOURCE: Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 665207	A1	19950802	EP 1995-300475	19950126
EP 665207	B1	19971001		
R: DE, FR, GB				
US 5476972	A	19951219	US 1994-188007	19940128
CA 2141270	AA	19950729	CA 1995-2141270	19950127
PRIORITY APPLN. INFO.:		US 1994-188007		19940128

AB A one-step method is disclosed for synthesis of ethers from acetone, which method comprises reacting an acetone-rich feed over a bifunctional catalyst comprising 5%-45% by wt. hydrogenation catalyst on 55%-95% of the total catalyst wt. of a support comprising a zeolite and a Group III or IV **metal oxide** to produce diisopropyl ether, MTBE, and iso-Pr tert-Bu ether. The novel one-step method is esp. useful for prodn. of high octane blending components for gasoline.

IT 1344-28-1, Alumina, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, **Platinum**, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses

RL: CAT (Catalyst use); USES (Uses)  
(iso-Pr alc. and ether prodn. from acetone for use as gasoline blending components)

IT 67-63-0P, Isopropyl alcohol 108-20-3P, Diisopropyl ether  
1634-04-4P, MTBE 17348-59-3P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(iso-Pr alc. and ether prodn. from acetone for use as gasoline blending  
components)

09/581,264

=> s 1634-04-4/rn  
4890 1634-04-4  
14 1634-04-4D  
L1 4882 1634-04-4/RN  
(1634-04-4 (NOTL) 1634-04-4D )

=> s metal oxide or tin oxide or stannous oxide or stannic oxide or sno

1345436 METAL  
669261 METALS  
1631119 METAL  
(METAL OR METALS)  
1263557 OXIDE  
285209 OXIDES  
1357367 OXIDE  
(OXIDE OR OXIDES)  
75285 METAL OXIDE  
(METAL(W)OXIDE)  
197064 TIN  
542 TINS  
197397 TIN  
(TIN OR TINS)  
1263557 OXIDE  
285209 OXIDES  
1357367 OXIDE  
(OXIDE OR OXIDES)  
28966 TIN OXIDE  
(TIN(W)OXIDE)  
7442 STANNOUS  
1263557 OXIDE  
285209 OXIDES  
1357367 OXIDE  
(OXIDE OR OXIDES)  
308 STANNOUS OXIDE  
(STANNOUS(W)OXIDE)  
4316 STANNIC  
1263557 OXIDE  
285209 OXIDES  
1357367 OXIDE  
(OXIDE OR OXIDES)  
1403 STANNIC OXIDE  
(STANNIC(W)OXIDE)  
3601 SNO  
40 SNOS  
3629 SNO  
(SNO OR SNOS)

L2 103980 METAL OXIDE OR TIN OXIDE OR STANNOUS OXIDE OR STANNIC OXIDE OR  
SNO

=> s 11 and 12

L3 36 L1 AND L2

=> d 13 1-36 ibib,kwic

L3 ANSWER 1 OF 36 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2002:423048 CAPLUS  
DOCUMENT NUMBER: 136:403490  
TITLE: Method and apparatus for utilizing smelting-reduction  
furnace gases for producing methanol and ammonia  
INVENTOR(S): Kishimoto, Michiharu; Miyashita, Torakatsu; Yajima,  
Kenichi; Nomoto, Hiroki  
PATENT ASSIGNEE(S): Kawasaki Heavy Industries, Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002161303	A2	20020604	JP 2000-358051	20001124

AB The gases generated from the furnace for **metal oxides** such as iron ores, is utilized by adding steam to the gases, setting temp. of the gases to make H:CO ratio near 2:1 for carrying out shift reaction, removing water and CO<sub>2</sub> from the reacted gases, and synthesizing MeOH from H and CO in the resulting gases. Me tert-Bu ether may be manufd. by reacting the MeOH with isobutylene. NH<sub>3</sub> is synthesized by adding steam obtained by using the furnace gas heat to the furnace gases, setting temp. or pressure to increase H in the gases for carrying out shift reaction, removing water and CO<sub>2</sub> from the reacted gases, and reacting H and N in the resulting gases. Urea may be manufd. by reacting the synthesized NH<sub>3</sub> with the CO<sub>2</sub> removed after the shift reaction. The arrangement of reactors and other units in the app. is also described.

IT 1634-04-4P, Methyl tert-butyl ether

RL: IMF (Industrial manufacture); PREP (Preparation)  
(manuf. of, from synthesized methanol; utilization of smelting-redn. furnace gases for producing methanol and ammonia)

L3 ANSWER 2 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:9931 CAPLUS

DOCUMENT NUMBER: 136:74199

TITLE: Photodegradative process for the purification of contaminated water

INVENTOR(S): Pappa, Rosario; Massetti, Felicia; Cova, Umberto

PATENT ASSIGNEE(S): Enitechnologie S.P.A., Italy

SOURCE: Eur. Pat. Appl., 8 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1167300	A1	20020102	EP 2001-112220	20010518
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
IT 2000MI1405	A1	20011224	IT 2000-MI1405	20000622

PRIORITY APPLN. INFO.: IT 2000-MI1405 A 20000622

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A photodegradative process is described for the purifn. of water contaminated by ether-based compds., esp. methylterbutyl ether (MTBE) or its analogous products, which comprises the following steps: (a) treatment of the contaminated water with an inorg. acid up to a pH ranging from 4.0 to 4.5 with the elimination of the carbon dioxide thus formed; (b) dispersion in the water of solid particles of a **metal oxide** of the semiconductor type or dissoln. of a stream consisting of ozone in pure oxygen or air; (c) irradn. of the dispersion or soln. obtained in step (b) with UV light to degrade the ether-based contaminants.

IT 108-20-3, Diisopropyl ether 109-99-9, Tetrahydrofuran, processes 637-92-3, Propane 2 ethoxy 2 methyl 994-05-8, Methyl tert-amyl Ether  
**1634-04-4**, Mtbe

RL: REM (Removal or disposal); PROC (Process)  
(photodegradative process for purifn. of contaminated water)

L3 ANSWER 3 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:930763 CAPLUS

DOCUMENT NUMBER: 136:19860

TITLE: Process for preparing 2,5-dimethyl-2,4-hexadiene

INVENTOR(S): Wang, Hua; Liu, Zhongmin; Sun, Chenglin; Zhang, Jinling

PATENT ASSIGNEE(S): Dalian Inst. of Chemicophysics, Chinese Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhanli Shengqing Gongkai Shuomingshu, 6 pp.  
CODEN: CNXXEV

DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1296936	A	20010530	CN 1999-122537	19991117

OTHER SOURCE(S): CASREACT 136:19860

AB 2,5-Dimethyl-2,4-hexadiene is synthesized by condensation reaction of isobutyraldehyde with isobutylene, tert-Bu alc., and/or Me tert-Bu ether in solvent in the presence of solid acid catalyst at 60-300.degree.. The molar ratio of isobutyraldehyde to isobutylene is 1:1-8, ratio of catalyst to isobutyraldehyde is 1:1-50, and vol. ratio of isobutyraldehyde to solvent is 1-3:1-10. The catalyst is acidic clay, **metal oxide**, compd. oxide, and/or mol. sieve.

IT 75-65-0, tert-Butanol, reactions 78-84-2, Isobutyraldehyde 115-11-7, Isobutene, reactions 1634-04-4, Methyl tert-butyl ether  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepns. of 2,5-dimethyl-2,4-hexadiene)

L3 ANSWER 4 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:774180 CAPLUS

DOCUMENT NUMBER: 136:106991

TITLE: Low temperature catalytic decomposition and oxidation of MTBE

AUTHOR(S): Mitani, M. M.; Keller, A. A.; Golden, S. J.; Hatfield, R.; Cheetham, A. K.

CORPORATE SOURCE: Bren School of Environmental Science and Management, University of California, Santa Barbara, CA, 93106, USA

SOURCE: Applied Catalysis, B: Environmental (2001), 34(2), 87-95

PUBLISHER: CODEN: ACBEE3; ISSN: 0926-3373  
Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Catalytic combustion of methyl-tert-butyl-ether (MTBE) was studied in the gas-phase from an aq. soln. spiked with MTBE (1.1 mM), to simulate actual remediation conditions. The soln. of MTBE was sparged with an oxygen/helium gas, at a ratio of 1-4. The sparged gas stream of MTBE and water vapor was passed over catalysts utilizing Pt/Rh or Pd in conjunction with a mixed **metal oxide** based upon La<sub>1-x</sub> Sr<sub>x</sub> MnO<sub>3</sub>. The results were compared to a com. catalyst which contained a higher loading of Pt. The expts. with the catalysts were conducted over a temp. range of 80-500.degree.C. Combustion to CO<sub>2</sub> and water was obsd. in all cases, but byproduct formation of isobutene and methanol was seen at lower temps. for all of the catalysts tested, with the exception of the com. catalyst. The catalyst with the lowest loading of Pt/Rh achieved the lowest temp. for complete oxidn. of MTBE and its byproducts.

IT 1634-04-4, MTBE  
RL: REM (Removal or disposal); PROC (Process)  
(low temp. catalytic decompn. and oxidn. of MTBE)

L3 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:828728 CAPLUS

DOCUMENT NUMBER: 133:363114

TITLE: Bismuth- and molybdenum-containing composite oxide catalysts and production method of (meth)acrolein and (meth)acrylic acid therewith

INVENTOR(S): Kimura, Tadamasa; Tanimoto, Michio; Onodera, Hideo

PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000325795	A2	20001128	JP 1999-144296	19990525
US 6383973	B1	20020507	US 2000-575454	20000522
EP 1055455	A2	20001129	EP 2000-304451	20000525
EP 1055455	A3	20020502		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CN 1282630	A	20010207	CN 2000-120312	20000525
BR 2000002501	A	20010313	BR 2000-2501	20000525

PRIORITY APPLN. INFO.: JP 1999-144296 A 19990525

ST bismuth molybdenum composite oxide catalyst; acrylic acid prepn  
**metal oxide catalyst; acrolein prepn metal**  
**oxide catalyst; methacrylic acid prepn metal**  
**oxide catalyst; methacrolein prepn metal oxide**  
**catalyst**

IT Oxidation catalysts  
 (gas-phase; prepn. of (meth)acrolein and (meth)acrylic acid using  
 composite **metal oxide catalysts**)

IT Silica gel, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (prep. of composite **metal oxide catalysts** for  
 (meth)acrolein and (meth)acrylic acid prep.)

IT 78-85-3P, Methacrolein 79-10-7P, Acrylic acid, preparation 79-41-4P,  
 Methacrylic acid, preparation 107-02-8P, Acrolein, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (prep. of (meth)acrolein and (meth)acrylic acid using composite  
**metal oxide catalysts**)

IT 373-02-4, Nickel acetate 1304-76-3, Bismuth oxide, uses 1304-85-4,  
 Basic bismuth nitrate 5931-89-5, Cobalt acetate 7697-37-2, Nitric  
 acid, uses 7757-79-1, Potassium nitrate, uses 7789-18-6, Cesium  
 nitrate 10141-05-6, Cobalt nitrate 10361-44-1, Bismuth nitrate  
 10421-48-4, Nitric acid, iron(3+) salt 11120-25-5, Ammonium  
 paratungstate 12027-67-7, Ammonium paramolybdate 13138-45-9, Nickel  
 nitrate 17309-53-4, Cerium nitrate  
 RL: CAT (Catalyst use); USES (Uses)  
 (prep. of composite **metal oxide catalysts** for  
 (meth)acrolein and (meth)acrylic acid prep.)

IT 307297-37-6P 307297-38-7P  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
 USES (Uses)  
 (prep. of composite **metal oxide catalysts** for  
 (meth)acrolein and (meth)acrylic acid prep.)

IT 75-65-0, tert-Butanol, reactions 115-07-1, Propylene, reactions  
 115-11-7, Isobutylene, reactions 1634-04-4, Methyl tert-butyl  
 ether  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (starting material; prep. of (meth)acrolein and (meth)acrylic acid  
 using composite **metal oxide catalysts**)

L3 ANSWER 6 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:526864 CAPLUS

DOCUMENT NUMBER: 133:152962

TITLE: additives for catalytic cracking of hydrocarbons and  
 the catalytic cracking methodINVENTOR(S): Sue, Shukin; Wang, Guolian; Guo, Haiqin; Den,  
 Xianlian; Wang, Longjian; Qi, Wenni; Liu, Hshuhuan;  
 Shen, Baojan; Liu, Jinron; Zao, DonminPATENT ASSIGNEE(S): China Petrochemical Industry General Corp., Peop. Rep.  
 China; Liuyan Petrochemicla Engineering Corp.

SOURCE: Jpn. Kokai Tokyo Koho, 33 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000212575	A2	20000802	JP 1999-377233	19991228
CN 1258714	A	20000705	CN 1998-122188	19981229
PRIORITY APPLN. INFO.: CN 1998-122188 A 19981229				
IT 50-70-4D, D-Glucitol, reaction products with isovaleric acid 64-19-7, Acetic acid, uses 127-19-5 141-43-5, uses 142-72-3 503-74-2D, reaction products with sorbitol 537-01-9 543-94-2 929-06-6 1304-76-3, Bismuth oxide (Bi2O3), uses 1309-64-4, Antimony oxide (Sb2O3), uses 1320-04-3, Naphthalenecarboxylic acid 1330-20-7, uses 1634-04-4 2180-18-9 2272-11-9 2717-15-9 9036-19-5 21651-19-4, Tin oxide (SnO) 25103-52-0, Isooctanoic acid 32838-97-4 51845-86-4 89067-18-5 94246-95-4 97485-46-6 146623-02-1				
RL: NUU (Other use, unclassified); USES (Uses) (additives for hydrocarbon cracking catalysts for preventing nickel and vanadium poisoning and carbon monoxide emission)				

L3 ANSWER 7 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:363533 CAPLUS  
 DOCUMENT NUMBER: 132:339861  
 TITLE: Dual-functional packing type catalytic and distillation equipment and catalysts  
 INVENTOR(S): Zhang, Jinyong; Hao, Xingren; Wang, Jinshan; Gao, Buliang; Wang, Wei  
 PATENT ASSIGNEE(S): Qilu Petro-Chemical Industry Corp., SINOPEC, Peop. Rep. China  
 SOURCE: Faming Zhanli Shengqing Gongkai Shuomingshu, 11 pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1208664	A	19990224	CN 1997-106052	19970820
CN 1067905	B	20010704		
US 6117812	A	20000912	US 1998-166931	19981006
US 6291719	B1	20010918	US 2000-650094	20000829
PRIORITY APPLN. INFO.: CN 1997-106052 A 19970820				
US 1998-166931 A3 19981006				

AB The equipment is characterized by packing catalysts on the supporting plate with free space between catalyst granulars for better vapor and liq. contact with substrates in the reactor and simultaneous fractional distn. of products. The catalyst has 6-60 mm of equiv. diam., (0.2-3):1 ratio of height to diam. The catalyst may be prep'd. by using styrene-divinylbenzene copolymer, metal oxide or mol. sieve as carrier and adding active component; and it can be used in hydration, etherification, esterification, alkylation and hydrogenation, etc..  
 IT 994-05-8P, Methyl tert-pentyl ether 1634-04-4P, Methyl tert-butyl ether 26760-64-5P, tert-Amylene  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (dual-functional packing type catalytic and distn. equipment and catalysts)

L3 ANSWER 8 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:83259 CAPLUS  
 DOCUMENT NUMBER: 132:139087  
 TITLE: Strongly acid mesoporous synergistic solid catalyst and use of the same  
 INVENTOR(S): Vadav, Ganapati Dadasaheb; Krishnan, Muniyammal Sellamuttiupillai; Doshi, Nirav Shashikant; Pujari, Ajit Atmaram; Rahuman, Mohamed Sheik Mohamed Mujeebur Secretary, Department of Science and Technology (Dst), Government of India o, India  
 SOURCE: Ger. Offen., 18 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19857314	A1	20000203	DE 1998-19857314	19981211
PRIORITY APPLN. INFO.:			IN 1997-3590	19971212
			IN 1997-3594	19971212
			IN 1997-3595	19971212
ST	zeolite zirconium oxide sulfate catalyst manuf; alkylation catalyst sulfated metal oxide zeolite; nitration catalyst sulfated metal oxide zeolite; hydrocracking catalyst sulfated metal oxide zeolite; esterification catalyst sulfated metal oxide zeolite; etherification catalyst sulfated metal oxide zeolite; dehydrogenation catalyst sulfated metal oxide zeolite; hydrogenation catalyst sulfated metal oxide zeolite; isomerization catalyst sulfated metal oxide zeolite; oligomerization catalyst sulfated metal oxide zeolite; acylation catalyst sulfated metal oxide zeolite			
IT	Amines, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (arom.; strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	Polymerization catalysts (oligomerization; strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	Acylation catalysts Alkylation catalysts Dimerization catalysts Friedel-Crafts reaction catalysts (strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	Zeolites (synthetic), preparation RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	Alcohols, reactions Alkenes, reactions Aromatic compounds RL: RCT (Reactant); RACT (Reactant or reagent) (strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	14644-61-2P, Zirconium sulfate RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	101-81-5P, Benzylbenzene 134-85-0P, 4-Chlorobenzophenone 769-92-6P, 4-tert-Butylaniline 2409-55-4P, 2-tert-Butyl-p-cresol 17438-89-0P, 1-Decene dimer 18602-27-2P, 1-Octene dimer 27776-01-8P, Benzyltoluene 62132-67-6P, 1-Dodecene dimer RL: IMF (Industrial manufacture); PREP (Preparation) (strongly acid mesoporous synergistic solid catalyst contg. sulfated metal oxides on zeolite supports for org. compd. reactions)			
IT	62-53-3, Aniline, reactions 71-43-2, Benzene, reactions 74-85-1, Ethylene, reactions 75-65-0, tert-Butanol, reactions 100-44-7, Benzyl chloride, reactions 106-44-5, p-Cresol, reactions 108-88-3, Toluene, reactions 108-93-0, Cyclohexanol, reactions 110-83-8, Cyclohexene, reactions 115-07-1, Propylene, reactions 122-01-0, 4-Chlorobenzoyl			

chloride 1634-04-4, Methyl tert-butyl ether 25167-67-3,  
 Butylene 26760-64-5, Isoamylene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (strongly acid mesoporous synergistic solid catalyst contg. sulfated  
 metal oxides on zeolite supports for org. compd.  
 reactions)

L3 ANSWER 9 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:35226 CAPLUS  
 DOCUMENT NUMBER: 132:51422  
 TITLE: Catalyst for preparing methyl tert-butyl ether  
 INVENTOR(S): Tang, Jing; Dong, Weiyi; Wang, Yanji; Li, Heran  
 PATENT ASSIGNEE(S): Nankai University, Peop. Rep. China  
 SOURCE: Faming Zhanli Shenqing Gongkai Shuomingshu, 11 pp.  
 CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IT	CN 1152476	A	19970625	CN 1995-118963	19951219
IT	H-Beta zeolites RL: CAT (Catalyst use); USES (Uses) (catalysts; H.beta. zeolite-alumina-metal oxide -sulfate catalyst for prodn. of Me tert-Bu ether)				
IT	Etherification catalysts (methanol reaction with isobutylene to Me tert-Me ether in presence of H.beta. zeolite-alumina-metal oxide-sulfate catalyst or prodn. of Me tert-Bu ether)				
IT	1634-04-4P, Methyl tert-butyl ether RL: IMF (Industrial manufacture); PREP (Preparation) (H.beta. zeolite-alumina-metal oxide-sulfate catalyst for prodn. of Me tert-Bu ether)				
IT	1309-37-1, Ferric oxide, uses 1314-23-4, Zirconium oxide, uses 7550-45-0, Titanium tetrachloride, uses 7783-20-2, Ammonium sulfate, uses 10421-48-4, Ferric nitrate 13463-67-7, Titania, uses 13746-89-9, Zirconium nitrate RL: CAT (Catalyst use); USES (Uses) (catalysts; H.beta. zeolite-alumina-metal oxide -sulfate catalyst for prodn. of Me tert-Bu ether)				
IT	67-56-1, Methanol, reactions 115-11-7, Isobutylene, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (methanol reaction with isobutylene to Me tert-Me ether in presence of H.beta. zeolite-alumina-metal oxide-sulfate catalyst or prodn. of Me tert-Bu ether)				
IT	1344-28-1, .gamma.-Alumina, uses RL: CAT (Catalyst use); USES (Uses) (.gamma.-, .gamma.-, .gamma.-, .gamma.-, .gamma.-, .gamma.-, .gamma.-, catalysts; H.beta. zeolite-alumina-metal oxide -sulfate catalyst for prodn. of Me tert-Bu ether)				

L3 ANSWER 10 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1999:784338 CAPLUS  
 DOCUMENT NUMBER: 132:5852  
 TITLE: Process for the determination of MTBE in the ground  
 and air  
 INVENTOR(S): De Angelis, Lucio  
 PATENT ASSIGNEE(S): Enitecnologie S.P.A., Italy  
 SOURCE: PCT Int. Appl., 19 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 9963340 A1 19991209 WO 1999-EP1821 19990218  
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,  
DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,  
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,  
MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
TJ, TM

RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,  
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,  
CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2315001 AA 19991209 CA 1999-2315001 19990218

AU 9935972 A1 19991220 AU 1999-35972 19990218

EP 1084403 A1 20010321 EP 1999-917826 19990218

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, FI

JP 2002517723 T2 20020618 JP 2000-552496 19990218

PRIORITY APPLN. INFO.: IT 1998-MI1248 A 19980604  
WO 1999-EP1821 W 19990218

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Pollution by methyl-tert-butyl-ether (MTBE) in soil and at the surface is  
monitored using solid state sensors. The sensors consist of a sensitive  
element made of a semi-conductor **metal oxide** contg.

platinum, for example **tin oxide**, and a heater capable  
of bringing the temp. of the element to a range of 300-500.degree.C. The  
sensors are equipped with a membrane permeable to gas and impermeable to  
water and change resistance in response to interaction with MTBE. An  
example is described relating to the monitoring of underground fuel tanks  
contg. fuel with this oxygenated additive.

ST sensor environmental monitoring methyltertbutylether fuel leak; platinum  
**tin oxide** sensor methyltertbutylether

IT 1634-04-4, Methyl tert butyl ether  
RL: ANT (Analyte); MOA (Modifier or additive use); ANST (Analytical  
study); USES (Uses)

(solid state sensors for monitoring gasoline additive MTBE to detect  
fuel spills in soil and aboveground)

IT 1332-29-2, **Tin oxide**  
RL: DEV (Device component use); USES (Uses)  
(solid state sensors for monitoring gasoline additive MTBE to detect  
fuel spills in soil and aboveground)

L3 ANSWER 11 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:516399 CAPLUS

DOCUMENT NUMBER: 131:132136

TITLE: Acidic mesoporous catalysts

INVENTOR(S): Yahav, Ganapati Dadasaheb; Krishnan, M. S.; Doshi,  
Nirav Shashikant; Purjari, Ajit Atmaram; Rahuman, M.  
S. M. Mujeebur

PATENT ASSIGNEE(S): Secretary Department of Science and Technology, India

SOURCE: Brit. UK Pat. Appl., 34 pp.

CODEN: BAXXDU

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2332155	A1	19990616	GB 1998-27396	19981211
GB 2332155	B2	20010912		
JP 2000042416	A2	20000215	JP 1998-375450	19981214
US 6204424	B1	20010320	US 1998-211499	19981214

PRIORITY APPLN. INFO.: IN 1997-DE3590 A 19971212  
IN 1997-DE3594 A 19971212  
IN 1997-DE3595 A 19971212

OTHER SOURCE(S): MARPAT 131:132136

AB An eco-friendly synergistic heterogeneous solid catalyst for use in  
reactions, such as alkylation, oligomerization, isomerization, hydration,  
dehydration, etherification, esterification, hydrocracking, and nitration

of org. compds., comprises synergistic combination of sulfated metal oxide and mesoporous zeotypes comprising Si 50-60, Zr 40-50, and S 5-10 wt.%, and having surface area of 200-500 m<sup>2</sup>/g, pore vol. of 0.1-0.3 m<sup>3</sup>/g, pore diam. of 25-35 .ANG., and XRD peak at 20 being 0-3. The invention also covers the process of manuf. of the above catalysts and its use in particular for producing oligomers from .alpha.-olefins, Friedel-Crafts alkylation and acylation reactions.

IT 62-53-3, Benzenamine, reactions 75-65-0, reactions 106-44-5, reactions  
1634-04-4, MTBE

RL: RCT (Reactant); RACT (Reactant or reagent)  
(acidic mesoporous catalysts for alkylation)

L3 ANSWER 12 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:417787 CAPLUS

DOCUMENT NUMBER: 131:75246

TITLE: Manufacture of oxide catalysts for manufacture of unsaturated aldehydes and carboxylic acids

INVENTOR(S): Miyaki, Kenichi; Kuroda, Toru; Ohkita, Motomu

PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11179206	A2	19990706	JP 1997-349510	19971218

ST mixed metal oxide catalyst oxidn isobutylene; unsatd aldehyde manuf mixed oxide catalyst; carboxylic acid unsatd manuf oxide catalyst; silica sol mixed oxide catalyst manuf; molybdenum bismuth iron silicon oxide catalyst; methacrolein methacrylic acid manuf oxide catalyst

IT 75-65-0, reactions 115-07-1, 1-Propene, reactions 115-11-7, reactions  
1634-04-4, tert-Butyl methyl ether

RL: RCT (Reactant); RACT (Reactant or reagent)  
(manuf. of mixed oxide catalysts for manuf. of unsatd. aldehydes and carboxylic acids by oxidn.)

L3 ANSWER 13 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:80038 CAPLUS

DOCUMENT NUMBER: 128:101811

TITLE: Synthesis of 2,5-dimethyl-2,4-hexadiene by catalytic condensation

INVENTOR(S): Gao, Xuguo; Xu, Longya; Liu, Xiumei

PATENT ASSIGNEE(S): Dalian Inst. of Chemical Physics, Chinese Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1145892	A	19970326	CN 1995-112007	19950920

OTHER SOURCE(S): CASREACT 128:101811

ST hexadiene dimethyl metal oxide catalyst; butyraldehyde condensation butyl alc metal catalyst

IT 75-65-0, tert-Butyl alcohol, reactions 78-84-2, Iso-butyraldehyde 115-11-7, Isobutene, reactions 1634-04-4, tert-Butyl methyl ether

RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of 2,5-dimethyl-2,4-hexadiene by catalytic condensation)

L3 ANSWER 14 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:754312 CAPLUS

DOCUMENT NUMBER: 128:47976

TITLE: Method of filling oxidation catalysts in preparation of unsaturated aldehydes and unsaturated carboxylic acids  
INVENTOR(S): Shiotani, Toru; Sugiyama, Mieharu; Kuroda, Toru;  
Okita, Motomu  
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09301912	A2	19971125	JP 1996-137717	19960509
US 5892108	A	19990406	US 1997-852162	19970506
PRIORITY APPLN. INFO.:			JP 1996-137717	19960509

OTHER SOURCE(S): CASREACT 128:47976

AB In prepn. of the title unsatd. compds. from MeCH:CH<sub>2</sub>, Me<sub>2</sub>C:CH<sub>2</sub>, Me<sub>3</sub>COH, or Me<sub>3</sub>COMe by using mol. O in gas phase, Mo- and F-contg. oxidn. catalysts are mixed with metal Raschig rings as auxiliary fillers and charged into fixed bed reactors. A gaseous mixt. of MeCH:CH<sub>2</sub>, O, steam, and N was passed at 305.degree. through a fixed bed reactor filled with **metal oxide** catalyst (Mo<sub>12</sub>W<sub>0.1</sub>Bi<sub>0.9</sub>Fe<sub>1.3</sub>Sb<sub>1.2</sub>Co<sub>6.2</sub>Zn<sub>0.3</sub>K<sub>0.06</sub>) and Raschig ring made of SUS 304 to give acrolein and acrylic acid with 99.0% reactivity and, 87.0% and 5.9% selectivity, resp., with pressure loss 30.8%.

IT 75-65-0, tert-Butyl alcohol, reactions 115-07-1, Propylene, reactions 115-11-7, Isobutylene, reactions 1634-04-4, Methyl tert-butyl ether

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepns. of unsatd. aldehydes and unsatd. carboxylic acids using F- and Mo-contg. catalysts and metal Raschig rings)

L3 ANSWER 15 OF 36 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1996:51079 CAPLUS  
DOCUMENT NUMBER: 124:201250  
TITLE: Catalytic properties of metal-containing polymethylsiloxanes  
AUTHOR(S): Fiedorow, R.; Przystajko, W.; Adamiec, J.  
CORPORATE SOURCE: Fac. Chem., Adam Mickiewicz Univ., Poznan, 60-780, Pol.  
SOURCE: Appl. Organomet. Chem. (1995), 9(8), 707-12  
CODEN: AOCHEX; ISSN: 0268-2605  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Aluminum-, iron-, titanium- and zirconium-contg. polymethylsiloxanes (MPS) were studied as catalysts for acid-catalyzed reactions; their surface acidity and the strengths of their acid centers were detd. They appeared to be active for 2-propanol dehydration; the best sample was almost as active as alumina, which is known for its high activity for alc. dehydration. All metal-contg. MPS catalyzed double-bond migration and cis-trans isomerization of 2-butene. Some of them also catalyzed the synthesis of Me t-Bu ether, but their activity for this reaction was inferior to that of the resin Amberlyst-15 and some sulfate-ion modified **metal oxides**. No cumene conversion occurred on the catalysts studied and no pyridinium ion formation was obsd. by IR spectroscopy, which points to the absence of strong Broensted acid sites. The MPS are distinguished by quite large surface areas (86-299 m<sup>2</sup> g<sup>-1</sup>) and are capable of chemisorbing pyridine (0.014-0.047 mmol g<sup>-1</sup>) on their Lewis acid centers.

IT 1634-04-4P, tert-Butyl methyl ether  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(catalytic properties of metal-contg. polymethylsiloxanes)

L3 ANSWER 16 OF 36 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1995:846620 CAPLUS  
DOCUMENT NUMBER: 123:233131

TITLE: Isopropyl alcohol and ether production from acetone.  
 INVENTOR(S): Knifton, John Frederick; Dai, Pei-Shing Eugene;  
 Taylor, Robert Joel, Jr.; Martin, Bobby Ray  
 PATENT ASSIGNEE(S): Texaco Development Corp., USA  
 SOURCE: Eur. Pat. Appl., 16 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 665207	A1	19950802	EP 1995-300475	19950126
EP 665207	B1	19971001		
R: DE, FR, GB				
US 5476972	A	19951219	US 1994-188007	19940128
CA 2141270	AA	19950729	CA 1995-2141270	19950127

PRIORITY APPLN. INFO.: US 1994-188007 19940128

AB A one-step method is disclosed for synthesis of ethers from acetone, which method comprises reacting an acetone-rich feed over a bifunctional catalyst comprising 5%-45% by wt. hydrogenation catalyst on 55%-95% of the total catalyst wt. of a support comprising a zeolite and a Group III or IV metal oxide to produce diisopropyl ether, MTBE, and iso-Pr tert-Bu ether. The novel one-step method is esp. useful for prodn. of high octane blending components for gasoline.

IT 67-63-0P, Isopropyl alcohol 108-20-3P, Diisopropyl ether  
**1634-04-4P**, MTBE 17348-59-3P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (iso-Pr alc. and ether prodn. from acetone for use as gasoline blending components)

L3 ANSWER 17 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1995:759195 CAPLUS  
 DOCUMENT NUMBER: 123:314804  
 TITLE: Manufacture of catalysts for preparation of unsaturated aldehydes and carboxylic acids  
 INVENTOR(S): Shiotani, Tooru; Kuroda, Tooru; Taniguchi, Yoshuki  
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07124473	A2	19950516	JP 1993-300841	19931108
ST unsatd aldehyde prepn oxidn catalyst; carboxylic acid unsatd oxidn catalyst; contact oxidn catalyst metal oxide;				
ultrasonic treatment metal oxide catalyst; propylene contact oxidn acrolein catalyst; molybdenum bismuth iron oxide catalyst				

IT Oxidation catalysts  
 (metal oxide contact oxidn. catalysts for prepn. of unsatd. aldehydes or carboxylic acids)

IT Monomers  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (prepn. of unsatd. aldehydes or carboxylates by contact oxidn. in presence of metal oxides)

IT 75-65-0, tert-Butanol, reactions 115-07-1, Propylene, reactions 115-11-7, Isobutylene, reactions **1634-04-4**, Methyl tert-butyl ether 12054-85-2  
 RL: RCT (Reactant)

(in prepn. of unsatd. aldehydes or carboxylates by contact oxidn.)

IT 132003-28-2P 170214-68-3P  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
 (metal oxide contact oxidn. catalysts for prepn. of

unsatd. aldehydes or carboxylic acids)  
 IT 1304-76-3, Bismuth trioxide, reactions 1309-64-4, Antimony trioxide,  
 reactions 7757-79-1, Potassium nitrate, reactions 7779-88-6, Zinc  
 nitrate 7789-18-6 10141-05-6, Cobalt nitrate 10377-60-3, Magnesium  
 nitrate 10421-48-4, Ferric nitrate 11120-25-5, Ammonium paratungstate  
 13138-45-9, Nickel nitrate  
 RL: RCT (Reactant)  
 (prepn. of **metal oxide** contact oxidn. catalysts  
 from)

IT 78-85-3P, Methacrolein 107-02-8P, Acrolein, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (prepn. of unsatd. aldehydes or carboxylates by contact oxidn. in  
 presence of **metal oxides**)

L3 ANSWER 18 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1994:704106 CAPLUS  
 DOCUMENT NUMBER: 121:304106  
 TITLE: Multimetal oxides, their use as catalysts for the  
 manufacture of methacrolein, and catalyst supports  
 coated with the oxides  
 INVENTOR(S): Tenten, Andreas; Neumann, Hans-Peter; Exner, Herbert  
 PATENT ASSIGNEE(S): BASF A.-G., Germany  
 SOURCE: Ger. Offen., 8 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4407020	A1	19940915	DE 1994-4407020	19940303
US 5583086	A	19961210	US 1994-202067	19940225
JP 06321536	A2	19941122	JP 1994-38741	19940309
PRIORITY APPLN. INFO.:			DE 1993-4307381	19930309

IT Alkali **metal oxides**  
 Rare earth oxides  
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material  
 use); USES (Uses)  
 (multimetal oxides contg., for catalysts for methacrolein manuf. by  
 vapor-phase oxide. of tert. BuOH and Me ether and isobutane)

IT 75-65-0, tert. Butanol, reactions 115-11-7, Isobutene, reactions  
**1634-04-4**  
 RL: RCT (Reactant)  
 (vapor-phase oxide. of, to methacrolein, multimetal oxide catalysts  
 for)

L3 ANSWER 19 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1994:579086 CAPLUS  
 DOCUMENT NUMBER: 121:179086  
 TITLE: Manufacture of tertiary olefins by catalytic thermal  
 decomposition of alkyl tertiary-alkyl ethers  
 INVENTOR(S): Gyoda, Hisafumi; Ookita, Motomu  
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06072904	A2	19940315	JP 1992-252186	19920827
JP 2939065	B2	19990825		
OTHER SOURCE(S):	CASREACT	121:179086		

IT Thermal decomposition catalysts  
 (**metal oxides**, for alkyl tert-alkyl ethers to  
 tertiary alkenes)

IT 10043-01-3, Aluminum sulfate  
 RL: RCT (Reactant)  
 (metal oxide catalysts contg., for decompn. of  
 alkyl tert-alkyl ethers to tertiary olefins)  
 IT 1634-04-4, tert-Butyl methyl ether  
 RL: RCT (Reactant)  
 (thermal decompn. of, to isobutylene, catalysts for)

L3 ANSWER 20 OF 36 CAPIUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1994:244095 CAPIUS  
 DOCUMENT NUMBER: 120:244095  
 TITLE: Preparation of tertiary olefins from alkyl ethers  
 INVENTOR(S): Gyoda, Hisafumi; Ookita, Motomu; Taniguchi, Yoshuki;  
 Takeda, Hitoshi  
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05229965	A2	19930907	JP 1992-32343	19920219
JP 2858281	B2	19990217		

OTHER SOURCE(S): CASREACT 120:244095

IT Decomposition catalysts  
 (silicon metal oxides, for tertiary alkyl ethers)  
 IT 1634-04-4, Methyl tert-butyl ether  
 RL: RCT (Reactant)  
 (decompn. of, isobutylene from)

L3 ANSWER 21 OF 36 CAPIUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1993:606881 CAPIUS  
 DOCUMENT NUMBER: 119:206881  
 TITLE: Method for regenerating certain acidic hydrocarbon conversion catalysts by solvent extraction  
 INVENTOR(S): Cooper, Michael D.; Rao, Pradip; King, David L.; Lopez, Ronald R.  
 PATENT ASSIGNEE(S): Catalytica, Inc., USA  
 SOURCE: PCT Int. Appl., 32 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 4  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9310065	A1	19930527	WO 1992-US10095	19921123
W: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, PL, RO, RU, SD, SE, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG				
US 5326923	A	19940705	US 1991-796940	19911122
CN 1076386	A	19930922	CN 1992-114842	19921121
AU 9332224	A1	19930615	AU 1993-32224	19921123
EP 625133	A1	19941123	EP 1993-900631	19921123
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 07502928	T2	19950330	JP 1992-509557	19921123
BR 9206790	A	19951107	BR 1992-6790	19921123
FI 9401792	A	19940418	FI 1994-1792	19940418
NO 9401751	A	19940510	NO 1994-1751	19940510
PRIORITY APPLN. INFO.:			US 1991-796940	19911122
			US 1990-588448	19900926
			US 1991-697320	19910507
			WO 1992-US10095	19921123

AB Acidic, solid, hydrocarbon conversion catalysts, e.g., alkylation

catalysts, which may or may not contain a significant Lewis acid component, can be regenerated by contact with a solvent selected from SO<sub>2</sub>, oxygenates, alkyl nitriles, and phenolics, followed by sepn. of the catalyst. The catalyst then is heated to 75.degree. to remove volatile hydrocarbons. The catalyst may be a zeolite, alumina, aluminosilicate, silica, aluminum phosphate mol. sieve, silicoaluminophosphate mol. sieve, solid polymeric ion exchange resin, tetravalent metal phosphonate with pendant acid groups and sulfated **metal oxide**. The catalyst may be a Lewis acid such as BF<sub>3</sub>, BCl<sub>3</sub>, BBr<sub>3</sub>, BI<sub>3</sub>, SbF<sub>5</sub>, AlCl<sub>3</sub>, AlBr<sub>3</sub>, TiBr<sub>4</sub>, TiCl<sub>4</sub>, TiCl<sub>3</sub>, ZrCl<sub>4</sub>, PF<sub>5</sub>, FeCl<sub>3</sub>, and FeBr<sub>3</sub>.

IT 75-28-5, Isobutane 106-98-9, 1-Butene, uses 107-01-7, 2-Butene  
109-68-2, 2-Pentene 115-11-7, Isobutylene, uses 513-35-9 563-46-2  
624-64-6 1634-04-4, MTBE

RL: USES (Uses)

(alkylation catalyst regeneration by solvent extn. with)

L3 ANSWER 22 OF 36 CAPIPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1993:216262 CAPIPLUS

DOCUMENT NUMBER: 118:216262

TITLE: Etherification process with hydrogen rejuvenation for ethers used as gasoline octane boosters

INVENTOR(S): Harandi, Mohsen N.; Owen, Hartley

PATENT ASSIGNEE(S): Mobil Oil Corp., USA

SOURCE: U.S., 7 pp. Cont.-in-part of U.S. 5,015,782.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5166454	A	19921124	US 1991-695844	19910506
US 5015782	A	19910514	US 1990-495667	19900319

PRIORITY APPLN. INFO.: US 1990-495667 19900319

AB The manuf. of MTBE, which is useful as a gasoline octane enhancer, is carried out by dehydrogenation of isoalkanes to isoolefins and selective conversion of the isoolefins (i.e., isobutene) and alcs. (i.e., MeOH) in the presence of macroreticular polystyrenesulfonic acid resin catalysts. The catalysts are protected from decompn.-promoting impurities such as N-contg. compds., metals, and coke, by contacting the C4+ olefinic hydrocarbon feedstock contg. isoalkenes and aliph. alc. with a regenerable inorg. **metal oxide** catalyst, e.g., a medium pore zeolite, under etherification conditions. At least a portion of the hydrogen is recovered and used to remove feedstock impurities and coke from the regenerable etherification catalyst and restore acid activity.

IT 1634-04-4P, Methyl tert.-butyl ether

RL: PREP (Preparation)

(prodn. of, multi-stage process for, acid resin catalyst protection in)

L3 ANSWER 23 OF 36 CAPIPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1992:611992 CAPIPLUS

DOCUMENT NUMBER: 117:211992

TITLE: Preparation of dienes from tertiary alkyl ethers in a 2-stage process

INVENTOR(S): Ryu, Ji Yong; Michaelson, Robert Charles

PATENT ASSIGNEE(S): Exxon Chemical Patents, Inc., USA

SOURCE: PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9212111	A1	19920723	WO 1992-US204	19920108

W: AU, CA, JP

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE

US 5177290 A 19930105 US 1991-639621 19910110  
 AU 9211918 A1 19920817 AU 1992-11918 19920108  
 PRIORITY APPLN. INFO.: US 1991-639621 19910110  
 WO 1992-US204 19920108  
 IT 1310-53-8, Germanium oxide, uses 1312-43-2, Indium oxide 1314-56-3,  
 Phosphorus oxide, uses 1332-29-2, **Tin oxide**  
 1344-28-1, Aluminum oxide, uses 7631-86-9, Silicon oxide, uses  
 12024-21-4, Gallium oxide 12651-21-7, Thallium oxide  
 RL: CAT (Catalyst use); USES (Uses)  
       (catalyst contg., for prepn. of dienes from tertiary alkyl ethers)  
 IT 1634-04-4, Methyl tert-butyl ether  
 RL: RCT (Reactant)  
       (conversion of, to isoprene, 2-stage process for)

L3 ANSWER 24 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1991:558524 CAPLUS  
 DOCUMENT NUMBER: 115:158524  
 TITLE: Process for producing methacrolein and methacrylic acid  
 INVENTOR(S): Onodera, Hideo; Ohno, Shigeru; Kurimoto, Ikuo; Aoki, Yukio  
 PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 95 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9108185	A1	19910613	WO 1990-JP1594	19901206
W: KR, US RW: BE, DE, ES, FR, GB, IT, NL				
JP 03176440	A2	19910731	JP 1989-315163	19891206
JP 2934267	B2	19990816		
JP 03200733	A2	19910902	JP 1989-338471	19891228
JP 2756160	B2	19980525		
JP 09194409	A2	19970729	JP 1996-332127	19891228
JP 10072389	A2	19980317	JP 1997-99152	19891228
JP 03215441	A2	19910920	JP 1990-7200	19900118
JP 2638241	B2	19970806		
JP 03294238	A2	19911225	JP 1990-14815	19900126
EP 456837	A1	19911121	EP 1991-900057	19901206
EP 456837	B1	19961009		
R: BE, DE, ES, FR, GB, IT, NL				
EP 608917	A1	19940803	EP 1994-103673	19901206
EP 608917	B1	19990421		
R: BE, DE, ES, FR, GB, IT, NL				
ES 2092557	T3	19961201	ES 1991-900057	19901206
ES 2130297	T3	19990701	ES 1994-103673	19901206
US 5276178	A	19940104	US 1991-721574	19910802
JP 09202741	A2	19970805	JP 1996-332128	19961212
JP 2988660	B2	19991213		
PRIORITY APPLN. INFO.:			JP 1989-315163	19891206
			JP 1989-338471	19891228
			JP 1990-7200	19900118
			JP 1990-14815	19900126
			EP 1991-900057	19901206
			WO 1990-JP1594	19901206

ST methacrolein methacrylic acid; isobutylene oxidn catalyst; tertiary butanol oxidn catalyst; methyl tertiary butyl ether oxidn; **metal oxide** composite oxidn catalyst

IT Oxidation catalysts  
       (molybdenum-tungsten-bismuth-iron-other **metal oxides**, for isobutylene, tert-butanol, or Me tert-Bu ether, methacrolein or methacrylic acid for)

IT 1304-28-5, Barium oxide (BaO), uses and miscellaneous 1304-56-9, Beryllium oxide (BeO) 1304-76-3, Bismuth oxide (Bi2O3), uses and

miscellaneous 1305-78-8, Calcium oxide (CaO), uses and miscellaneous 1309-48-4, Magnesium oxide (MgO), uses and miscellaneous 1313-59-3, Sodium oxide (Na<sub>2</sub>O), uses and miscellaneous 1313-96-8, Niobium oxide (Nb<sub>2</sub>O<sub>5</sub>) 1313-99-1, Nickel oxide (NiO), uses and miscellaneous 1314-11-0, Strontium oxide (SrO), uses and miscellaneous 1314-13-2, Zinc oxide (ZnO), uses and miscellaneous 1314-35-8, Tungsten oxide (W<sub>2</sub>O<sub>3</sub>), uses and miscellaneous 1314-56-3, Phosphorus oxide (P<sub>2</sub>O<sub>5</sub>), uses and miscellaneous 1327-33-9, Antimony oxide 1332-29-2, **Tin oxide** 1332-37-2, Iron oxide, uses and miscellaneous 1335-25-7, Lead oxide 1344-28-1, Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), uses and miscellaneous 7446-07-3, Tellurium oxide (TeO<sub>2</sub>) 7631-86-9, Silica, uses and miscellaneous 11104-61-3, Cobalt oxide 11129-18-3, Cerium oxide 11129-60-5, Manganese oxide 12057-24-8, Lithium oxide (Li<sub>2</sub>O), uses and miscellaneous 12136-45-7, Potassium oxide (K<sub>2</sub>O), uses and miscellaneous 12651-21-7, Thallium oxide 13463-67-7, Titanium oxide (TiO<sub>2</sub>), uses and miscellaneous 18088-11-4, Rubidium oxide (Rb<sub>2</sub>O) 18868-43-4, Molybdenum oxide (MoO<sub>2</sub>) 20281-00-9, Cesium oxide (Cs<sub>2</sub>O)

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oxidn. of isobutylene, tert-butanol, or Me tert-Bu ether to methacrolein or methacrylic acid)

IT 75-65-0, tert-Butanol, reactions 115-11-7, Isobutylene, reactions

1634-04-4, Methyl tert-butyl ether

RL: RCT (Reactant)  
(oxidn. of, to methacrolein or methacrylic acid)

L3 ANSWER 25 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1991:491660 CAPLUS

DOCUMENT NUMBER: 115:91660

TITLE: Protection of polystyrenesulfonic acid resin catalyst in a multi-stage process for preparing unsymmetrical tertiary alkyl ethers

INVENTOR(S): Harandi, Mohsen N.; Owen, Hartley

PATENT ASSIGNEE(S): Mobil Oil Corp., USA

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5015782	A	19910514	US 1990-495667	19900319
US 5348707	A	19940920	US 1991-644141	19910122
US 5166454	A	19921124	US 1991-695844	19910506

PRIORITY APPLN. INFO.: US 1990-495667 19900319

AB The manuf. of the title ethers, e.g., Me<sub>3</sub>COMe (MTBE) and EtCOMe<sub>2</sub>OMe (TAME) which are useful as gasoline octane no. enhancers, proceeds by selective conversion of isoolefins (e.g. isobutene) and alcs. (e.g. MeOH) in the presence of macroreticular polystyrenesulfonic acid resin catalysts. These are highly sensitive to overheating (>90.degree.) and decomp. by releasing sulfonic and sulfuric acids that cause decompn. of the title products. In the title process, the resin catalysts are protected from decompn. promoting impurities such as N-contg. compds., metals, and coke, by contacting the C<sub>4</sub> + olefinic hydrocarbon feedstock contg. isoalkenes and aliph. alc. with a regenerable inorg. **metal oxide** catalyst, e.g. a medium pore zeolite, under etherification conditions to convert a major amt. of isoalkene to C<sub>5+</sub> tertiary alkyl ether. A reaction effluent is recovered from the 1st stage, charged to a 2nd stage distn. column contg. conventional solid acid resin etherification catalyst in a plurality of fixed bed catalysis-distn. zones, in which etherification of isoalkene is completed. Regeneration of the 1st stage **metal oxide** catalyst to remove the feedstock impurity and coke, and to restore its acid activity, is considerably more cost effective than purifying a contaminated acid resin catalyst. An app. for catalytically prep. ethers from olefins and alcs. is also disclosed.

IT 994-05-8P, Methyl tertiary amyl ether 1634-04-4P, Methyl tertiary butyl ether

RL: PREP (Preparation)

(prodn. of, multi-stage process for, acid resin catalyst protection in)

L3 ANSWER 26 OF 36 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1989:517304 CAPLUS  
DOCUMENT NUMBER: 111:117304  
TITLE: Process and catalysts for the one-step manufacture of methyl tertiary butyl ether  
INVENTOR(S): Knifton, John F.  
PATENT ASSIGNEE(S): Texaco Chemical Co., USA  
SOURCE: U.S., 9 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4827048	A	19890502	US 1988-168022	19880314
EP 333076	A1	19890920	EP 1989-104331	19890311
EP 333076	B1	19930804		
R: DE, ES, FR, GB, IT, NL				
ES 2058366	T3	19941101	ES 1989-104331	19890311
JP 01279854	A2	19891110	JP 1989-59884	19890314
PRIORITY APPLN. INFO.:			US 1988-168022	19880314

OTHER SOURCE(S): CASREACT 111:117304

AB MTBE is prep'd. in a high yield one-step process by passing MeOH and tert-BuOH over a heteropoly acid dehydration catalyst which is supported on a **metal oxide** carrier at 20-200.degree./0-1000 psig. The process allows the utilization of tert-BuOH in place of isobutylene (which is at times in short supply). A 12-molydophosphonic acid-on-titania catalyst was contacted with a MeOH-tert-BuOH (40.0:20.0 mol ratio) feed at 100.degree./30 psi at liq. hourly space velocity 1 h-1, producing a product stream contg. .apprx. 36% MTBE.

IT Heteropoly acids

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, supported on **metal oxide** carriers, for dehydration of methanol and butanol in MTBE manuf.)

IT Dehydration catalysts

(heteropoly acids supported on **metal oxide** carriers, for conversion of butanol and methanol into MTBE)

IT 1343-93-7, 12-Tungstophosphoric acid 12026-57-2, 12-Molybdophosphoric acid 12027-12-2, 12-Molybdosilicic acid 12027-38-2, 12-Tungstosilicic acid

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, supported on **metal oxide** carriers, for dehydration of methanol and butanol in MTBE manuf.)

IT 1634-04-4P

RL: PREP (Preparation)  
(manuf. of, from butanol and methanol, catalysts for)

L3 ANSWER 27 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:424091 CAPLUS  
DOCUMENT NUMBER: 111:24091  
TITLE: Catalysts for oxidation of tert-butyl methyl ether to methacrolein and methacrylic acid  
INVENTOR(S): Kinumi, Kazunori; Aoki, Yukio; Wada, Masahiro  
PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan  
SOURCE: Eur. Pat. Appl., 9 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 304867	A2	19890301	EP 1988-113699	19880823
EP 304867	A3	19890823		

R: BE, DE, ES, FR, GB, IT, NL  
JP 01056634 A2 19890303  
JP 07116070 B4 19951213

JP 1987-210244 19870826

PRIORITY APPLN. INFO.:

JP 1987-210244 19870826

IT Oxidation catalysts

(metal oxides, for Bu Me ether to methacrolein and  
methacrylic acid)

IT 1634-04-4, tert-Butyl methyl ether

RL: RCT (Reactant)

(oxidn. of, to methacrylic acid and methacrolein, catalysts for)

L3 ANSWER 28 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:33125 CAPLUS

DOCUMENT NUMBER: 110:33125

TITLE: Superconductor metal oxide

catalyst in a chemiluminescence chromatography  
detector

AUTHOR(S): McNamara, E. A.; Montzka, S. A.; Barkley, R. M.;  
Sievers, R. E.

CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Colorado, Boulder, CO,  
80309, USA

SOURCE: J. Chromatogr. (1988), 452, 75-83  
CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal

LANGUAGE: English

TI Superconductor metal oxide catalyst in a  
chemiluminescence chromatography detector

ST superconductor metal oxide catalyst chemiluminescence  
detector; yttrium barium copper oxide catalyst chemiluminescence; nitrogen  
dioxide reagent chemiluminescence detection; gas chromatog  
chemiluminescence detector superconductor catalyst; alc gas chromatog  
chemiluminescence detection; alkene gas chromatog chemiluminescence  
detection; oxygenate gas chromatog chemiluminescence detection; MTBE detn  
gasoline gas chromatog; gasoline analysis MTBE gas chromatog; nitrogen  
contg compd gas chromatog chemiluminescence

IT Alcohols, analysis

Alkenes, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(gas chromatog. of, superconductor metal oxide  
catalyst in chemiluminescence detector for)

IT Spectrochemical analysis

(chemiluminescence, superconductor metal oxide  
catalyst for, for gas chromatog. detection)

IT Chromatographs, gas

(detectors, chemiluminescence, for nitrogen- and oxygen-contg. org.  
compds., superconductor metal oxide catalyst in)

IT 67-56-1, Methanol, analysis 67-64-1, Acetone, analysis 71-43-2,  
Benzene, analysis 75-05-8, Acetonitrile, analysis 75-07-0,  
Acetaldehyde, analysis 75-52-5, Nitromethane, analysis 75-65-0,  
tert-Butanol, analysis 78-93-3, Methyl ethyl ketone, analysis 108-87-2,  
Methylcyclohexane 108-88-3, Toluene, analysis 111-65-9, n-Octane,  
analysis 111-66-0, 1-Octene 7664-41-7, Ammonia, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, by gas chromatog., chemiluminescence detector contg.  
superconductor metal oxide catalyst for)

IT 64-17-5, Ethanol, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, by gas chromatog., superconductor metal  
oxide catalyst in chemiluminescence detector for)

IT 1634-04-4, MTBE

RL: ANT (Analyte); ANST (Analytical study)  
(detection of, in gasoline by gas chromatog. with chemiluminescence  
detector contg. superconducting metal oxide  
catalyst)

IT 10102-44-0, Nitrogen dioxide, reactions

RL: RCT (Reactant); ANST (Analytical study)  
(redox reaction of, with org. compds. for chemiluminescence detection  
in gas chromatog. of nitrogen- and oxygen-contg.. compds.,  
superconducting metal oxide catalyst for)

L3 ANSWER 29 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1988:589836 CAPLUS  
 DOCUMENT NUMBER: 109:189836  
 TITLE: process for the preparation of isovaleraldehyde and/or isoamyl alcohol  
 INVENTOR(S): Deguchi, Takashi; Ishino, Masaru; Sago, Shoichi;  
 Tamura, Mitsuhisa  
 PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63035532	A2	19880216	JP 1986-181251	19860731
JP 06060113	B4	19940810		

AB Title compds. are prep'd. by conversion of MeOCMe<sub>3</sub> into CH<sub>2</sub>:CMe<sub>2</sub> and MeOH in the presence of solid acid catalysts, conversion of MeOH into CO and H in the presence of metal and/or **metal oxide** catalysts, followed by treatment of CH<sub>2</sub>:CMe<sub>2</sub> with CO and H in the presence of oxo-synthesis catalysts. MeOCMe<sub>3</sub> was treated with NiSO<sub>4</sub> at 297.degree. under normal pressure to give CH<sub>2</sub>:CMe<sub>2</sub> and MeOH in quant. selectivity [based on converted MeOCMe<sub>3</sub> (conversion 99.5%)]. A 1:1 mol mixt. of CH<sub>2</sub>:CMe<sub>2</sub> and MeOH was treated with a compd. oxide catalyst contg. CuO 45, ZnO 45, and Cr<sub>2</sub>O<sub>3</sub> 10% at 285.degree. under normal pressure to give 97.1% CO and 189.6% H (based on MeOH, conversion 99.8%) and quant. CH<sub>2</sub>:CMe<sub>2</sub> was recovered. A 1:2 mol mixt. of CO and H (both obtained above) and CH<sub>2</sub>:CMe<sub>2</sub> (obtained above) were treated with Co<sub>2</sub>(CO)<sub>3</sub> in EtPh at 150.degree. and 140-150 kg/cm<sup>2</sup> for 2 h to give CHMe<sub>3</sub>, Me<sub>2</sub>CHCH<sub>2</sub>COH, and Me<sub>2</sub>CH(CH<sub>2</sub>)<sub>2</sub>OH in 4.6, 81.9, and 3.8% selectivity, resp. (conversion of CH<sub>2</sub>:CMe<sub>2</sub> was 99.3%). CHMe<sub>3</sub>, Me<sub>2</sub>CHCH<sub>2</sub>COH, and Me<sub>2</sub>CH(CH<sub>2</sub>)<sub>2</sub>OH were similarly prep'd. in 16.1, 2.4, and 60.9% selectivity, resp. (conversion of CH<sub>2</sub>:CMe<sub>2</sub> was 96.3%) but in the presence of Bu<sub>3</sub>P at 190.degree. and 62-90 kg/cm<sup>2</sup>.

IT 1634-04-4, Methyl tert-butyl ether  
 RL: RCT (Reactant)  
 (conversion of, isovaleraldehyde and/or isoamyl alc. from)

L3 ANSWER 30 OF 36 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1988:457040 CAPLUS  
 DOCUMENT NUMBER: 109:57040  
 TITLE: Catalysts for etherification of olefins  
 INVENTOR(S): Atkins, Martin Philip; Ball, William John; Smith, David John Harry  
 PATENT ASSIGNEE(S): British Petroleum Co. PLC, UK  
 SOURCE: Eur. Pat. Appl., 5 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 259105	A2	19880309	EP 1987-307614	19870827
EP 259105	A3	19890315		
R: BE, DE, FR, GB, IT, NL, SE				
AU 8777136	A1	19880310	AU 1987-77136	19870817
NO 8703642	A	19880304	NO 1987-3642	19870828
JP 63069541	A2	19880329	JP 1987-220089	19870902

PRIORITY APPLN. INFO.: GB 1986-21263 19860903

AB Catalysts for etherification of olefins by alcs. are prep'd. by treating solid **metal oxides** contg. residual OH groups with acids. Thus, 600 g ZrCl<sub>4</sub> in 2.4 L H<sub>2</sub>O was basified with concd. NH<sub>3</sub>, filtered, dried, calcined at 250.degree. for 4 h, treated with 300 mL 0.5M H<sub>2</sub>SO<sub>4</sub>, and dried at 100.degree. to give a catalyst, which was used for

etherification of 1:1 isobutylene-MeOH to give 6% MTBE after 8 h, vs. 1.2 when acid treatment preceded calcination.

IT 1314-23-4D, reaction products with acids 7664-93-9D, Sulfuric acid, reaction products with oxides 7697-37-2D, Nitric acid, reaction products with oxides 18282-10-5D, **Stannic oxide**, reaction products with acids  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for etherification of olefins with alcs.)

IT 994-05-8P, tert-Amyl methyl ether 1634-04-4P, MTBE  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(prepn. of, catalysts for)

L3 ANSWER 31 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1986:614566 CAPLUS

DOCUMENT NUMBER: 105:214566

TITLE: Catalyst for producing isoprene

INVENTOR(S): Yablonskaya, A. I.; Bol'shakov, D. A.; Morozova, L. A.; Bushin, A. N.; Stepanov, G. A.; Chaplits, D. N.; Troitskii, A. P.

PATENT ASSIGNEE(S): USSR

SOURCE: U.S.S.R. From: Otkrytiya, Izobret. 1986, (28), 283.

CODEN: URXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 415906	A1	19860730	SU 1976-1797690	19760615

ST **metal oxide** didymium oxidative dehydration catalyst; isoprene manuf catalyst; butyl methyl ether dehydration catalyst

IT Rare earth metals, compounds

RL: USES (Uses)  
(didymium, catalysts from **metal oxides** and silica and, for tert-Bu Me ether conversion to isoprene)

IT Dehydration catalysts  
(oxidative, **metal oxides**-didymium-silica, for tert-Bu Me ether conversion to isoprene)

IT 1313-27-5, uses and miscellaneous 11099-11-9 12640-40-3 39318-18-8

RL: CAT (Catalyst use); USES (Uses)  
(catalysts from didymium and silica and **metal oxides** contg., for tert-Bu Me ether conversion to isoprene)

IT 78-79-5P, preparation

RL: PREP (Preparation)  
(manuf. of, from tert-Bu Me ether, **metal oxide**-didymium-silica-catalyzed)

IT 1634-04-4

RL: RCT (Reactant)  
(oxidative dehydration of, to isoprene, **metal oxide**-didymium-silica-catalyzed)

L3 ANSWER 32 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1986:21767 CAPLUS

DOCUMENT NUMBER: 104:21767

TITLE: Transhydrogenation of isobutane in manufacture of MTBE

PATENT ASSIGNEE(S): ICI Australia Ltd., Australia

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60126240	A2	19850705	JP 1984-233380	19841107
AU 8434694	A1	19850516	AU 1984-34694	19831107
AU 563178	B2	19870702		

US 4546204 A 19851008 US 1984-665973 19841029  
CA 1230615 A1 19871222 CA 1984-467276 19841107  
AU 1983-2244 19831107

PRIORITY APPLN. INFO.: OTHER SOURCE(S): CASREACT 104:21767

AB Me tert-Bu ether (MTBE) as a gasoline additive is manufd. by transhydrogenation between an isobutane-contg. recycled C4 hydrocarbon stream and a C2H4-contg. cracking product over CrO<sub>3</sub>/Al<sub>2</sub>O<sub>3</sub> (or transition metal oxides on a nonacidic porous support) at 400-550.degree. and 1.3-10 atm to yield a product contg. an isobutene-C<sub>2</sub>H<sub>6</sub> mixt. followed by reacting the isobutene mixt. with MeOH in a liq. phase over an acidic solid catalyst, sepg. and recycling C<sub>2</sub> and C<sub>4</sub> products for cracking or recycled directly for the transhydrogenation step. Thus, a product gas contg. 8.11 mol% isobutene was manufd. by reacting a mixt. contg. C<sub>2</sub>H<sub>4</sub> 53.84, C<sub>2</sub>H<sub>6</sub> 0.11, and isobutane 46.04 mol% at 480.degree. and ambient pressure over 19 wt.% CrO<sub>3</sub>/Al<sub>2</sub>O<sub>3</sub>.

IT 1634-04-4P

RL: PREP (Preparation)  
(manuf. of, from isobutene and methanol, dehydrogenation-hydrogenation of isobutane-ethene mixts. in)

L3 ANSWER 33 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1981:516186 CAPLUS

DOCUMENT NUMBER: 95:116186

TITLE: Methacrylonitrile and hydrogen cyanide by ammoxidation of tert-butyl methyl ether

PATENT ASSIGNEE(S): Nitto Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 56010160	A2	19810202	JP 1979-84451	19790705
JP 61044856	B4	19861004		

AB Methacrylonitrile (I) [126-98-7] and HCN were concurrently obtained by ammoxidn. of Me<sub>3</sub>COMe [1634-04-4] over a 12:3-15:2-15:0-10:0-5:0-5 Mo Bi Sb Ni P X oxide catalyst (X = Na, K, Rb, Cs). Thus, 715.4 g 20% SiO<sub>2</sub> sol contg. 0.04% Na<sub>2</sub>O was treated successively with 3.9 g 85% H<sub>3</sub>PO<sub>4</sub>, 72.0 g ammonium molybdate, 59.3 g Ni(NO<sub>3</sub>)<sub>2</sub>, 3.5 g KNO<sub>3</sub>, 99.0 g Bi(NO<sub>3</sub>)<sub>3</sub>, and 29.8 g Sb<sub>2</sub>O<sub>3</sub>, pelletized, and heated at 600.degree. for 4 h to give a 12:6:6:6:1:1:0.27 Mo Bi Sb Ni P K Na oxide catalyst. The catalyst was packed into a reactor and treated with 7 L/h 1:3.5:2.2 Me<sub>3</sub>COMe-O-NH<sub>3</sub> at 410.degree. (2.5 s) to give 76.2% I, 13.7% HCN, and 4.2% isobutene.

ST methacrylonitrile manuf butyl methyl ether; hydrogen cyanide manuf ammoxidn; metal oxide ammoxidn catalyst; molybdenum ammoxidn catalyst; bismuth ammoxidn catalyst; antimony ammoxidn catalyst; nickel ammoxidn catalyst; phosphorus ammoxidn catalyst

IT Ammoxidation catalysts

(mixed metal oxides, for tert-Bu Me ether to methacrylonitrile and hydrogen cyanide)

IT 1634-04-4

RL: PROC (Process)  
(ammoxidn. of, to methacrylonitrile and hydrogen cyanide, catalysts for)

IT 126-98-7P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(manuf. of, by ammoxidn. of Bu Me ether, metal oxide catalysts for)

L3 ANSWER 34 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1978:74711 CAPLUS

DOCUMENT NUMBER: 88:74711

TITLE: Methacrylic derivatives from tertiary butyl-containing compounds

INVENTOR(S): Hardman, Harley F.; Callahan, James L.; Grasselli, Robert K.

PATENT ASSIGNEE(S): Standard Oil Co. (Ohio), USA

SOURCE: U.S., 4 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4065507	A	19771227	US 1976-711014	19760802
US 4323520	A	19820406	US 1977-794875	19770509
CA 1113498	A1	19811201	CA 1977-282896	19770715
DE 2732952	A1	19780209	DE 1977-2732952	19770721
DE 2732952	C2	19870212		
GB 1564459	A	19800410	GB 1977-31076	19770725
BR 7704883	A	19780613	BR 1977-4883	19770726
JP 53018508	A2	19780220	JP 1977-90241	19770727
AT 7705553	A	19800115	AT 1977-5553	19770728
AT 358002	B	19800811		
BE 857324	A1	19771114	BE 1977-179784	19770729
FR 2360545	A1	19780303	FR 1977-23447	19770729
DD 132860	C	19781115	DD 1977-200356	19770729
DD 137582	C	19790912	DD 1977-207071	19770729
CS 194814	P	19791231	CS 1977-5036	19770729
CS 194845	P	19791231	CS 1978-2906	19770729
CH 635056	A	19830315	CH 1977-9428	19770729
NO 7702723	A	19780203	NO 1977-2723	19770801
NL 7708493	A	19780206	NL 1977-8493	19770801
ES 461227	A1	19781201	ES 1977-461227	19770801
ES 462969	A1	19780616	ES 1977-462969	19771006
AT 7905633	A	19820915	AT 1979-5633	19790821
AT 370723	B	19830425		
CH 635315	A	19830331	CH 1982-1030	19820218
PRIORITY APPLN. INFO.:			US 1976-711014	19760802
			AT 1977-5553	19770728
			CH 1977-9428	19770729

AB Methacrolein (I) [78-85-3] and either methacrylonitrile [126-98-7] or isobutylene (II) [115-11-7] were prep'd. by ammoxidn. and dehydrogenation of methyl tert-Bu ether (III) [1634-04-4] or isobutylene dimer [18923-87-0]. Thus, a slurry was prep'd. from 1.29 parts 85% H3PO4 and aq. solns. of NH4 heptamolybdate 47.5, Co(NH3)2.6H2O 29.4, Ni(NO3)2.6H2O 16.3, Fe(NO3)3.9H2O 27.2, Ni(NO3)3.5H2O 10.9, HNO3 1.5, and KNO3 0.16 parts and 13.15 parts silica. The slurry was dried, calcined at 274-88.degree., mixed with 1% graphite, formed into tablets, and calcined 5 h at 560.degree. to give a catalyst of compn. 82.5% K0.07Ni2.5Co4.5Fe3BiP0.5Mo12O50-17.5% SiO2. A 1:10:4 (molar) III-air-water stream was contacted with the catalyst 3s at 371.degree. to give 27.1% per pass conversion to I and 21.6% per pass conversion to II.

IT Ammoxidation catalysts  
(mixed metal oxides, for Me Bu ether)

IT 1634-04-4  
RL: PROC (Process)  
(ammoxidn. of, catalyst for)

L3 ANSWER 35 OF 36 CAPIUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1971:422153 CAPIUS

DOCUMENT NUMBER: 75:22153

TITLE: Isoprene

INVENTOR(S): Watanabe, Yoshihiro; Kobayashi, Jiro; Toyoshima, Yoshiki; Saito, Masatoshi

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd.

SOURCE: U.S., 3 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3574780	A	19710413	US 1969-848726	19690808

IT Dehydrogenation catalysts  
     (metal oxides, for isoprene manuf.)  
 IT 115-11-7, uses and miscellaneous 1634-04-4  
 RL: USES (Uses)  
     (isoprene manuf. from, catalysts for)

L3 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1971:143095 CAPLUS

DOCUMENT NUMBER: 74:143095

TITLE: Isoprene by oxidation of tert-butyl methyl ether  
 INVENTOR(S): Watanabe, Yoshihiro; Kobayashi, Jiro; Toyoshima,  
                  Yoshiki; Saito, Masatoshi

PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd.

SOURCE: Ger. Offen., 15 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1941949	A	19710311	DE 1969-1941949	19690818
DE 1941949	C3	19730503		

IT Oxidation catalysts  
     (transition metal oxides, for tert-butyl methyl  
      ether)  
 IT 1634-04-4  
 RL: RCT (Reactant)  
     (oxidn. of, catalysts for)